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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,592	12/23/2003	Robert Brule	45283.102	1591

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EXAMINER	
BALDWIN, GORDON	
ART UNIT	**PAPER NUMBER**
1775	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/707,592	BRULE ET AL.	
	Examiner	Art Unit	
	Gordon R. Baldwin	1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ray (U. S. Pat. No. 5,098,871).

Consider claims 1-5 and 7-10, the term "gas seal" or "seal" is considered to be an intended use and a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Ray teaches a ceramic composite (with ceramic powders and fibers (Col. 3 lines 18-35 and Col. 5 lines 23-28) in which the binder is removed and the porosity is increased by a binder burnout phase. Specifically, Ray teaches in example one (Col. 7 lines 20-52) that alumina is subjected to a binder burnout and then is sintered at 1080° C. However this temperature is considered to be commensurate with the range taught by the applicant in paragraph 29 if the specification, which reads, "typically in the range of 500-1000° C. Applicant states that this range results in a composite that has been unsintered, therefore the article of Ray is not considered to be sintered in regard to the applicant's temperature teaching. Ray teaches that after heating to 1000° C the density of the article is 60%, of the theoretical density which is considered to overlap (Ray, Col. 7 lines 20-52) Since applicant's claim 1 discloses alumina as the material and the

reference also teaches alumina, and the method of heating is performed at a commensurate temperature, the characteristics would also be expected to be similar.

As for the percentage of porosity at a pre-fired stage and a post-fired stage, the claim is considered to be a final product limited to 30-60% porosity. The reference to the "increasing" is considered to be product-by-process limitations and even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process., (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (*In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ritland (U.S. Pat. No. 5,503,122) and further in view of De Jager (U.S. Pat. no. 5,439,627).

Consider claims 1 and 3-10, Ritland teaches a ceramic matrix with a powder ceramic that is presintered (or fired) to remove the binder, but is not sintered, with alumina as the ceramic, and the per-sintered ceramic attains a porosity of 10-70%, which is considered to encompass a range of less than 50%, 45%, 40% and 35% porosity. (Col. 5 lines 30-40 and Col. 7 lines 8-50) Ritland also suggest the use of ceramic fibers in metallic components. (Col. 3 lines 3-6) Ritland also teaches the use of a binder and the burning off of the binder to control the porosity of the final product. (Col. 7 lines 7-27) However, Ritland does not specifically teach the use of ceramic fibers in the presintered ceramic matrix, however, De Jager teaches the manufacture of reinforced compositions using composites and laminates reinforced with long or continuous fibers or filaments with ceramic matrix composites (Col. 1 lines 5-12), the use of binder, which is removed by heating (Col. 6, lines 11-14). De Jager also teaches that matrix particle (ceramic structure with fiber and filaments) present between the monofilaments keeps the filaments spaced, and the pre-form or molded structure becomes more and more porous during debinding. (time required for binder removal by heat)(Col. 6 lines 10-14 and lines 25-31) By this statement in De Jager, when the ceramic item containing binder, is heated (or fired) the binder will be removed, and with the binder being removed, the fibrous particles in the ceramic matrix will increase in

porosity. Additionally, De Jager teaches the use a tape casting process. (Col. 3 lines 3-7)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the ceramic-metal engine component of Ritland with De Jager's methods of manufacturing reinforced compositions with binders that increase porosity minimally to be able to design seals with lower porosity through combining metal powders with certain binders which can maximize physical strength and density.

Consider claim 2, claim 2 is considered to be an intended use and a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The combination of Ritland and De Jager is considered to teach a structure that is capable of performing in the same capacity as the claimed invention.

Response to Arguments

Applicant's arguments filed 7/5/2007 have been fully considered but they are not persuasive.

Regarding the argument against Ray, the sintering temperature (as shown in Example 1, Col. 7 lines 35-50) is substantially similar to the range of the firing and working range of the applicant's invention (500-1000ºC, Page 12 of the specification). The difference in temperatures is not considered to be significant enough (in light of the

applicant's specification) to properly make the distinction between applicant's gas seal and that of Ray. This interpretation of the temperatures is considered to show that Ray teaches a sintered or fired body of Ray with 60% of theoretical density, thereby Ray is considered to teach a post-fired or post-sintered porosity of 40% which is in the claimed range of the applicant. (As shown in Example 1, Col. 7 lines 35-50)

Applicant's arguments, filed 7/5/2007, with respect to 35 U.S.C. 102(b) rejection with Nakano have been fully considered and are persuasive. The 35 U.S.C. 102(b) rejections with Nakano of claims 1,2,7-10 have been withdrawn.

As for the argument against the combination De Jager and Ritland, the arguments of the applicant are not considered to be persuasive. Ritland specifically teaches in a pre-sintered step, after a binder burn out of around 600°C, an alumina seal can have a total porosity of between 10-70%. (Ritland (Col. 8-50) While this is an intermediate phase, the Court has held that, "Where the products produced by the reference process are neither transitory nor ephemeral but are by nature tangible and permanent pending the subsequent treatment to which they are subjected, Held that such products, though intermediate, in the reference, are anticipatory of the product defined by the claims on appeal." (Brinton 82 USPQ 112) Since the alumina is shown to be presintered (or fired) in a temperature range approximately the same as the applicant with the same material (alumina) and the same porosities, then the fact that metal is later introduced is considered to be irrelevant. Because, at this intermediate point in Ritland, the process can be stopped and the article is tangible and permanent in

its intermediate state, thereby teaching the same article as the claimed invention of the applicant.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GRB

JENNIFER C. MCNEIL
SUPERVISORY PATENT EXAMINER
9/14/7